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| 22917  | 7590        | 02/22/2007           |                          |                  |
| MOTOROLA, INC.<br>1303 EAST ALGONQUIN ROAD<br>IL01/3RD<br>SCHAUMBURG, IL 60196 |             |                      | EXAMINER<br>HO, CHUONG T |                  |
|  |             |                      | ART UNIT                 | PAPER NUMBER     |
|  |             |                      | 2616                     |                  |

| SHORTENED STATUTORY PERIOD OF RESPONSE | NOTIFICATION DATE | DELIVERY MODE |
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| 3 MONTHS                               | 02/22/2007        | ELECTRONIC    |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Notice of this Office communication was sent electronically on the above-indicated "Notification Date" and has a shortened statutory period for reply of 3 MONTHS from 02/22/2007.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

Docketing.Schaumburg@motorola.com  
APT099@motorola.com

**Office Action Summary**

Application No.

10/014,676

Applicant(s)

BONTA, JEFFREY D.

Examiner

CHUONG T. HO

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 30 January 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_.

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1. The amendment filed 01/30/07 have been entered and made of record..
2. Applicant's arguments with respect to claims 1-21 have been considered but are moot in view of the new ground(s) of rejection.

Applicant's request for reconsideration of the finality of the rejection of the last Office action is persuasive and, therefore, the finality of that action is withdrawn.

3. Claims 1-21 are pending.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-2, 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dehner et al. (U.S.Patent No. 6,882,677 B2) in view Anvekar et al. (U.S.Patent No. 6,377,805 B1) in view of Gwon et al. (U.S.Patent No. 2003/0016655 A1).

Regarding to claim 1, Dehner et al. discloses defining a neighborhood cell by transmitting a localized wireless coverage area-identifying signal (see col. 8, lines 53-58) (see col.1, lines 13-30, Wireless LANs (WLANs) such as Bluetooth, Home RF, 802.11, ...these networks are designed and constructed to provide adhoc wireless network....Essentially, in part to keep the networks simple and inexpensive, provisions for mobility management, such as handoff from one coverage area to another that may

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be considered and present in and associated with wide area networks (WLANs) such as cellular phone systems have not been included in WLAN) (see col. 4, lines 55-56); comprising:

Establishing communication between a source mobile subscriber unit (see col. 2, lines 60-67) and a destination unit when the source mobile subscriber unit is outside of the neighborhood cell( see col. 3, lines 1-5) ); receiving the localized wireless coverage area identifying signal (see col. 4, lines 55-56, discover other NAPs and exchange their respective IDs); switching over to ad hoc wireless network coverage when the source mobile subscriber unit enters the neighborhood cell to maintain the communication between the source mobile subscriber unit and the destination unit (col. 8, lines 3-5, communication continues and time seamless);

Establishing of communication between a source mobile subscriber unit and destination unit is achieved through the ad hoc wireless network coverage when the source mobile subscriber unit is within the neighborhood cell, switching over to the wide area network coverage when the source mobile subscriber mobile unit exist the neighborhood cell (see col. 1, lines 26-30, provisions for mobility management, such as handoff from one coverage area (Ad hoc) to another (wireless area network) that may be considered and present in and associated with wide area networks) (WANs) such as cellular phone system).

However, Dehner et al. is silent to disclosing if the establishing of communication between a source mobile subscriber unit and a destination unit is achieved through

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wide area network coverage when the source mobile subscriber unit is outside of the neighborhood cell, switching over to ad hoc wireless network coverage.

See figure 2, Bahl et al. discloses a system of communicating in and around a localized wireless coverage area (see figure 2, page 4, [0031], switching over ); comprising:

- Establishing communication (see figure 4, col. 6, lines 18-26) between a source mobile (see figure 4, col. 6, lines 18-26) and a destination unit (see figure 4, col. 6, lines 18-26);
- If the establishing of communication between a source mobile subscriber unit (see figure 6, col. 6, lines 18-26) and a destination unit (see figure 4, col. 4, lines 18-26) is achieved through wide area network coverage when the source mobile subscriber unit is outside of the neighborhood cell (ad hoc), switching over (handoff) to ad hoc wireless network coverage when the source mobile subscriber enter the neighborhood cell (see figure 4, col. 6, lines 20-26, col. 6, lines 50-67);
- If the establishing of communication between a source mobile subscriber unit (see figure 4, col. 6, lines 18-26) and a destination unit (see figure 4, col. 6, lines 18-26) is achieved through the ad hoc wireless network coverage when the source mobile subscriber unit is within the neighborhood cell, switching over to the wide area network coverage when the source mobile subscriber mobile unit exists the neighborhood cell.

Both Dehner and Anvekar disclose ad-hoc network. Anvekar recognizes if the establishing of communication between a source mobile subscriber unit and a destination unit is achieved through wide area network coverage when the source mobile subscriber unit is outside of the neighborhood cell, switching over to ad hoc wireless network coverage when the source mobile subscriber unit enters the neighborhood cell; and if the establishing of communication between a source mobile subscriber unit and a destination unit is achieved through the ad hoc wireless network coverage when the source mobile subscriber unit is within the neighborhood cell, switching over to the wide area wireless network coverage when the source mobile subscriber unit exits the neighborhood cell. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the system of Dehner with the teaching of Bahl to provide if the establishing of communication between a source mobile subscriber unit and a destination unit is achieved through wide area network coverage when the source mobile subscriber unit is outside of the neighborhood cell, switching over to ad hoc wireless network coverage when the source mobile subscriber unit enters the neighborhood cell; and if the establishing of communication between a source mobile subscriber unit and a destination unit is achieved through the ad hoc wireless network coverage when the source mobile subscriber unit is within the neighborhood cell, switching over to the wide area wireless network coverage when the source mobile subscriber unit exits the neighborhood cell in order to access both ad hoc network and wireless network (IS).

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However, the combined system (Dehner – Anvekar) is silent to disclosing determining whether the source mobile subscriber unit is a subscriber on the neighborhood cell and if the source mobile subscriber unit is a subscriber, switching over.

Gwon et al., see figure 1, discloses the invention provides a way to reduce packet latency, packet loss and packet jitter that result when communications between a mobile node and one or more other fixed or mobile correspondent nodes is dynamically handed-off from one neighboring node to another due to a change in location of the mobile node within the network (see page 3, [0026], page 5, [0049], [0050], page 6, [0053], page 9, [0084]); comprising:

- when the source mobile subscriber unit enters the neighborhood cell to maintain the communication between the source mobile subscriber unit and the destination unit; and when the source mobile subscriber unit exits the neighborhood cell to maintain the communication between the source mobile subscriber unit and the destination unit (see page 5, [0049], [0050], As mobile node (MN) 135 reaches intermediary location B and continues toward location C, in order to maintain communication with the network it must identify a new local router and establish a new network link to replace the link with local router R1) (see page 6, [0050], packets transmitted to the home IP address of mobile node 135 will be tunneled by the home area router to mobile node 135 at its new care of IP address);

- determining whether the source mobile subscriber unit is a subscriber on the neighborhood cell and if the source mobile subscriber unit is a subscriber, switching over (see page 6, [0051], authentication, security process).

Both Dhner, Bahl, and Gwon discloses the ad-hoc wireless network. Gwon recognizes determining whether the source mobile subscriber unit is a subscriber on the neighborhood cell and if the source mobile subscriber unit is a subscriber, switching over. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the combined system (Dhner – Bahl) with the teaching of Gwon to provide determining whether the source mobile subscriber unit is a subscriber on the neighborhood cell and if the source mobile subscriber unit is a subscriber, switching over in order to prevent the loss of any packets during hand-off.

5. In the claim 2, Dhner discloses when the source mobile subscriber receives a last hop probing signal indicating that the source mobile subscriber unit has entered the neighborhood cell (see abstract).

However, Dhner is silent to disclosing if the establishing of communication between a source mobile subscriber unit and a destination unit is achieved through wide area network coverage when the source mobile subscriber unit is outside of the neighborhood cell, switching over to the ad hoc wireless network coverage.

Anvekar et al. discloses if the establishing of communication between a source mobile subscriber unit and a destination unit is achieved through wide area network coverage when the source mobile subscriber unit is outside of the neighborhood cell, switching over to the ad hoc wireless network coverage when the source mobile



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subscriber unit has entered the neighborhood cell to maintain the communication (see col. 6, lines 50-67) between the source mobile subscriber unit and the destination unit (see col. 6, lines 18-26, a handoff mobile unit requires information about neighboring slave mobile units in order to establish an ad hoc handoff picocell. A handoff mobile unit can transmit inquiry messages in order to discover other slave mobile units that are active in its neighborhood. The slave mobile units that capture the inquire messages may send a response "last hop response unit" to the handoff mobile unit).

Both Dehner and Anvekar disclose ad-hoc network. Anvekar recognizes if the establishing of communication between a source mobile subscriber unit and a destination unit is achieved through wide area network coverage when the source mobile subscriber unit is outside of the neighborhood cell, switching over to ad hoc wireless network coverage when the source mobile subscriber unit enters the neighborhood cell. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the system of Dehner with the teaching of Anvekar to provide if the establishing of communication between a source mobile subscriber unit and a destination unit is achieved through wide area network coverage when the source mobile subscriber unit is outside of the neighborhood cell, switching over to ad hoc wireless network coverage when the source mobile subscriber unit enters the neighborhood cell; and if the establishing of communication between a source mobile subscriber unit and a destination unit is achieved through the ad hoc wireless network coverage when the source mobile subscriber unit is within the neighborhood cell, switching over to the wide area wireless network coverage when the source mobile

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subscriber unit exits the neighborhood cell in order to access both ad hoc network and wireless network (IS).

6. In the claim 6, Anvekar discloses at all subscriber units within the neighborhood cell, including the source mobile subscriber unit and the one or more last hop nodes, periodically probing (see figure 4, col. 6, lines 18-26) a first set of mobile subscriber units in proximity thereto to collect ad hoc wireless network coverage information.

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 3-5, 7, 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combined system (Dehner – Anvekarl – Gwon) in view of Razavillar et al. (U.S. Patent No. 7,009,952 B1).

In the claim 3, the combined system (Dehner – Anvekarl – Gwon) discloses the limitations of claim 1 above.

However, the combined system (Dehner – Anvekarl – Gwon) is silent to disclosing providing one or more last hop nodes within the neighborhood cell each comprises of a mobile subscriber unit within the neighborhood cell to regulate packet

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traffic between the source mobile subscriber unit and the destination unit during the communication between the source mobile subscriber unit and the destination unit.

Razavillar et al. discloses providing one or more last hop nodes (see figure 1, access point) within the neighborhood cell each comprising of a mobile subscriber unit within the neighborhood cell to regulate packet traffic (see col. 3, lines 1-5) between the source mobile subscriber unit and the destination unit during the communication between the source mobile subscriber unit and the destination unit.

Both Dehner, Anvekar, Gwon, and Razavillar disclose the wireless network. Razavillar recognizes providing one or more last hop nodes within the neighborhood cell each comprises of a mobile subscriber unit within the neighborhood cell to regulate packet traffic between the source mobile subscriber unit and the destination unit during the communication between the source mobile subscriber unit and the destination unit. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the combined system (Dehner – Anvekarl – Gwon) with the teaching of Razavillar to provide one or more last hop nodes within the neighborhood cell each comprises of a mobile subscriber unit within the neighborhood cell to regulate packet traffic between the source mobile subscriber unit and the destination unit during the communication between the source mobile subscriber unit and the destination unit in order to maintain an establishing session.

9. In the claim 4, the combined system (Dehner – Anvekarl – Gwon) disclose the limitations of claim 3 above.

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However, the combined system (Dehner – Anvekarl – Gwon) is silent to disclosing providing one or more last hop nodes within the neighborhood cell each comprised of a mobile subscriber unit to regulate data packet traffic between the source mobile subscriber unit and the destination unit during the communication between the source mobile subscriber unit and the destination unit further comprises providing one or more stationary last hop node at fix locations within the neighborhood cell each comprised of a mobile subscriber unit.

Razavillar discloses providing one or more last hop nodes within the neighborhood cell each comprised of a mobile subscriber unit to regulate data packet traffic between the source mobile subscriber unit and the destination unit during the communication between the source mobile subscriber unit and the destination unit further comprises providing one or more stationary last hop node at fix locations within the neighborhood cell each comprised of a mobile subscriber unit (see col. 3, lines 1-5).

Both Dehner, Anvekar, Gwon, and Razavillar disclose the wireless network.

Razavillar recognizes providing one or more last hop nodes within the neighborhood cell each comprised of a mobile subscriber unit to regulate data packet traffic between the source mobile subscriber unit and the destination unit during the communication between the source mobile subscriber unit and the destination unit further comprises providing one or more stationary last hop node at fix locations within the neighborhood cell each comprised of a mobile subscriber unit. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the combined system (Dehner – Anvekarl – Gwon) with the teaching of Razavillar to provide one or more last

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hop nodes within the neighborhood cell each comprised of a mobile subscriber unit to regulate data packet traffic between the source mobile subscriber unit and the destination unit during the communication between the source mobile subscriber unit and the destination unit further comprises providing one or more stationary last hop node at fix locations within the neighborhood cell each comprised of a mobile subscriber unit in order to maintain an establishing session.

10. In the claim 5, the combined system (Dehner – Anvekarl – Gwon) discloses the limitations of claim 3 above.

However, the combined system (Dehner – Anvekarl – Gwon) is silent to disclosing the providing of one or more last hop nodes within the neighborhood cell each comprised of a mobile subscriber unit to regulate data packet traffic between the source mobile subscriber unit and the destination unit during the communication between the source mobile subscriber unit and the destination unit further comprises providing one or more mobile last hop nodes each comprised of a mobile subscriber unit that dynamically defines the neighborhood cell.

Razavillar discloses the providing of one or more last hop nodes within the neighborhood cell each comprised of a mobile subscriber unit to regulate data packet traffic between the source mobile subscriber unit and the destination unit during the communication between the source mobile subscriber unit and the destination unit further comprises providing one or more mobile last hop nodes each comprised of a mobile subscriber unit that dynamically defines the neighborhood cell (see figure 1, col. 5, lines 1-15).

Both Dehner, Anvekar, Gwon, and Razavillar disclose the wireless network. Razavillar recognizes the providing of one or more last hop nodes within the neighborhood cell each comprised of a mobile subscriber unit to regulate data packet traffic between the source mobile subscriber unit and the destination unit during the communication between the source mobile subscriber unit and the destination unit further comprises providing one or more mobile last hop nodes each comprised of a mobile subscriber unit that dynamically defines the neighborhood cell. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the combined system (Dehner – Anvekarl – Gwon) with the teaching of Razavillar to provide one or more last hop nodes within the neighborhood cell each comprised of a mobile subscriber unit to regulate data packet traffic between the source mobile subscriber unit and the destination unit during the communication between the source mobile subscriber unit and the destination unit further comprises providing one or more mobile last hop nodes each comprised of a mobile subscriber unit that dynamically defines the neighborhood cell in order to maintain an establishing session.

11. In the claim 7, the combined system (Dehner – Anvekarl – Gwon) discloses wherein the periodically probing of a first set of neighborhood mobile subscriber units in proximity thereto collect ad hoc wireless network coverage information comprises periodically probing a first set of neighboring mobile subscriber units to collect ad hoc wireless network coverage route (see Olkkonen, col. 5, lines 35-50).

However, the combined system (Dehner – Anvekarl – Gwon) is silent to disclosing probing to collect cost information; and utilizing the ad hoc wireless network coverage

route and cost information to create at least cost data packet route from the source mobile subscriber unit to the destination unit.

Razavillar discloses probing to collect cost information; and utilizing the ad hoc wireless network coverage route and cost information to create at least cost data packet route from the source mobile subscriber unit to the destination unit. (see col. 5, lines 1-15).

Both Dehner, Avekar, Gwon, and Razavillar disclose the wireless network. Razavillar recognizes probing to collect cost information; and utilizing the ad hoc wireless network coverage route and cost information to create at least cost data packet route from the source mobile subscriber unit to the destination unit. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the combined system (Dehner – Anvekarl – Gwon) with the teaching of Razavillar to provide one or more last hop nodes within the neighborhood cell each comprised of a mobile subscriber unit to regulate data packet traffic between the source mobile subscriber unit and the destination unit during the communication between the source mobile subscriber unit and the destination unit further comprises providing one or more mobile last hop nodes each comprised of a mobile subscriber unit that dynamically defines the neighborhood cell in order to maintain an establishing session.

12. In the claim 8, Olkkonen et al. discloses providing one or more last hop nodes within the neighborhood cell to regulate data packet traffic between the source mobile subscriber unit and the destination unit during the communication between the source mobile subscriber unit and the destination unit further comprises providing one or more

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last hop node (see figure 1, wireless device provider 106, 118) within the neighborhood cell to multiplex (see col. 3, line 16) mobile subscriber unit data packets onto a single channel for transmission to a wide area network.

***Claim Rejections - 35 USC § 103***

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

14. Claims 9-10, 11-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dehner (U.S. Patent No. 6,882,677 B1) in view of Anvekar et al. (U.S. Patent No. 6,377,805 B1) in view of Gwon et al. (U.S. Patent No. 2003/0016655 A1).

In the claim 9, Dehner discloses determining whether a predetermined number of network frame errors (see col. 5, lines 3-5) have been received subsequent to the establishing of a wide area communication route to a destination (see col. 5, lines 3-5, signal quality such as received signal strength (RSSI), or bit error rate).

However, Dehner is silent to disclosing the establishing of a wide area communication route to a destination unit through a wide area network coverage mode of operation.

Anvekar discloses establishing a data packet to a destination unit through wide area network coverage (see figure 4, col. 6, lines 18-26); the establishing of a wide area



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communication route to a destination unit through a wide area network coverage mode of operation; switching over (see col. 6, lines 18-26, handoff) to ad hoc wireless network coverage upon determining that the data packet route is being disrupted and upon entry into a defined neighborhood cell; switching over further conditioned on received a localized wireless coverage area identifying signal (col. 6, lines 18-26) and determining whether service is available in the defined neighborhood cell (see col. 6, lines 18-26).

Both Dehner and Anvekar disclose the wireless network. Anvekar recognizes the establishing of a wide area communication route to a destination unit through a wide area network coverage mode of operation. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the system of Dehner with the teaching of Anvekar to provide the establishing of a wide area communication route to a destination unit through a wide area network coverage mode of operation in order to access both ad hoc network and wireless network; switching over to ad hoc wireless network coverage to maintain the communication between the source mobile subscriber unit and the destination unit; and when the source mobile subscriber unit exists the neighborhood cell to maintain the communication between the source mobile subscriber unit and the destination unit (see col. 6, lines 50-67).

However, the combined system (Dehner – Anvekar) are silent to disclosing authorized in the defined neighborhood cell.

Gwon et al., see figure 1, discloses the invention provides a way to reduce packet latency, packet loss and packet jitter that result when communications between a mobile node and one or more other fixed or mobile correspondent nodes id dynamically

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handed-off from one neighboring node to another due to a change in location of the mobile node within the network (see page 3, [0026], page 5, [0049], [0050], page 6, [0053]; page 9, [0084]); comprising:

- switching over to ad hoc wireless network coverage to maintain the communication between the source mobile subscriber unit and the destination unit; and when the source mobile subscriber unit exists the neighborhood cell to maintain the communication between the source mobile subscriber unit and the destination unit (see page 5, [0049], [0050], As mobile node (MN) 135 reaches intermediary location B and continues toward location C, in order to maintain communication with the network it must identify a new local router and establish a new network link to replace the link with local router R1) (see page 6, [0050], packets transmitted to the home IP address of mobile node 135 will be tunneled by the home area router to mobile node 135 at its new care of IP address); determining whether service is available is and authorized in the defined neighborhood cell (see [0051], those skilled in the art understand that in addition to the router identification, registration and rerouting processes that must occur during hand-off between local routers R1 and R2, mobile node authentication and security processes may also be required. Authentication and security processes are intended to ensure that the node communicating on the new network link is authentic and authorized so as to avoid problems like eavesdropping, active replay attacks, and other types of attacks and unauthorized access to confidential data).

Both Dhner, Anvekar, and Gwon discloses the ad-hoc wireless network. Gwon recognizes switching over to ad hoc wireless network coverage to maintain the communication between the source mobile subscriber unit and the destination unit; and when the source mobile subscriber unit exists the neighborhood cell to maintain the communication between the source mobile subscriber unit and the destination unit. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the combined system (Dehner – Anvekar) with the teaching of Gwon to provide switching over to ad hoc wireless network coverage to maintain the communication between the source mobile subscriber unit and the destination unit; and when the source mobile subscriber unit exists the neighborhood cell to maintain the communication between the source mobile subscriber unit and the destination unit in order to maintain communication within the network. Therefore, the combined system would have been enable to prevent the loss of any packets during hand-off.

15. In the claim 10, Dehner discloses the limitations of claim 9 above.

However, Dehner is silent to disclosing comprising re-establishing the data packet route to the destination unit through the wide area network coverage within the defined neighborhood cell upon leaving a coverage hole within the neighborhood cell.

Anvekar discloses re-establishing the data packet route to the destination unit through the wide area network coverage within the defined neighborhood cell upon leaving a coverage hole within the neighborhood cell (see figure 4, col. 6, lines 18-26).

Both Dehner, and Anvekar disclose the wireless network. Anvekar recognizes re-establishing the data packet route to the destination unit through the wide area network

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coverage within the defined neighborhood cell upon leaving a coverage hole within the neighborhood cell. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the system of Dehner with the teaching of Anvekar to re-establishing the data packet route to the destination unit through the wide area network coverage within the defined neighborhood cell upon leaving a coverage hole within the neighborhood cell in order to prevent the loss of any packets during hand-off.

16. In the claim 11, Dehner discloses during the ad hoc wireless network coverage (see col. 1, line 15) , communicating with one or more stationary last hop nodes (see figure 1, the access point) within the neighborhood cell to enable data packets transmitted on the data packet route to be multiplexed with other subscriber unit data packets onto a single channel for transmission to a wide area network (see col. 1, lines 15-35).

17. In the claim 12, Dehner discloses the switching over to ad hoc wireless network coverage upon entering into one of a neighborhood cell coverage hole and a neighborhood cell interference region (see col. ).

However, Dehner is silent to disclosing to maintaining the data packet route to the destination unit upon entering into one of a neighborhood cell coverage hole and a neighborhood cell interference region.

Anvekar discloses to maintaining the data packet route to the destination unit upon entering into one of a neighborhood cell coverage hole and a neighborhood cell interference region (see figure 4, col. 6, lines 18-26)

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Both Dehner and Anvekar disclose the wireless network. Anvekar recognizes maintaining the data packet route to the destination unit upon entering into one of a neighborhood cell coverage hole and a neighborhood cell interference region. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the system of Dehner with the teaching of Anvekar to maintain the data packet route to the destination unit upon entering into one of a neighborhood cell coverage hole and a neighborhood cell interference region in order to control packet latency.

***Claim Rejections - 35 USC § 103***

18. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

19. Claims 13-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combined system (Dehner – Anvekar – Gwon) in view of Olkkonen et al.

(U.S. Patent No. 6,842,460 B1).

In the claim 13, the combined system (Dehner – Anvekar – Gwon) disclose the limitations of claim 9 above.

However, the combined system (Dehner – Anvekar – Gwon) is silent to disclosing periodically probing a plurality of neighboring mobile subscriber units to collect ad hoc wireless network coverage information while within the neighborhood cell.

Olkkonen et al. discloses periodically probing a plurality of neighboring mobile subscriber units to collect ad hoc wireless network coverage information (see col. 5, lines 35-50, beacon signal) while within the neighborhood cell (see col. 5, lines 35-50).

Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the combined system (Dehner – Anvekar – Gwon) with teaching of Olkkonen to provide periodically probing a plurality of neighboring mobile subscriber units to collect ad hoc wireless network coverage information while within the neighborhood cell in order to improve short-range handoff.

20. In the claim 14, the combined system (Dehner – Anvekar – Gwon) discloses the probing of a plurality of neighboring mobile subscriber units to collect ad hoc wireless network coverage information to collect ad hoc wireless network coverage route and cost information, wherein the establishing of the data packet route to the destination unit through wide area network coverage within the defined neighborhood cell is executed utilizing the ad hoc wireless network coverage route and cost information (see Dhner, col. 1, lines 15-35, col. 4, lines 55-56).

However, the combined system (Dehner – Anvekar – Gwon) is silent to disclosing the periodically probing of a plurality of neighboring mobile subscriber units to collect ad hoc wireless network coverage information

Olkkonen et al. discloses the periodically probing of a plurality of neighboring mobile subscriber units to collect ad hoc wireless network coverage information (see col. 5, lines 35-50).

Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the combined system (Dehner – Anvekar – Gwon) with the teaching of Olkkonent to provide the periodically probing of a plurality of neighborhood mobile subscriber unit in order to improve the short-range switching over.

21. In the claim 15, Dehner et al. discloses the switching over (col. 1, lines 15-35, handoff) to ad hoc wireless network coverage to maintain the data packet route to the destination unit when a predetermined number of network frame errors (see col. 5, lines 1-15, bit error rate) have been detected further comprises communicating, through at least one ad hoc mobile subscriber connection, with the last hop (see figure 1, access point) mobile subscriber unit that is connected to a wide area network for transmission of data packets to the wide area network and that dynamically defines the neighborhood cell (see figure 1, col. 1, lines 15-35).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

22. Claims 16-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Anvekar (U.S.Patent No. 6,377,805 B1) and in view of Karaoguz (U.S.Patent No.7,114,010 B2) .

In the claim 16, Anvekar et al. discloses a last hop node (figure 4, M1, M2) for defining a neighborhood cell (see figure 4, col. 4, lines 18-26); the last hop node (figure 4, M1, M2) further for causing the source mobile subscriber unit to communicate with the destination unit through the conventional wireless network coverage when the source mobile subscriber unit is outside of the neighborhood cell, and for causing the source mobile subscriber unit to communicate with the destination unit through ad hoc wireless network coverage when the source mobile subscriber unit is within the neighborhood cell (see col. 6, lines 18-26).

However, Dehner is silent to disclosing a source mobile subscriber unit (multi-mode communication device 30) including a first source transceiver for communicating through wide area wireless network coverage outside of the neighborhood cell, and a second source transceiver for communicating through ad hoc wireless network coverage within the neighborhood cell.

Karaoguz discloses a source mobile subscriber unit (see figure 1, multi-mode communication device 30) including a first source transceiver (see figure 3, radio interface 68) for communicating through wide area wireless network coverage outside of the neighborhood cell (see figure 1, figure 3, col. 4, lines 18-30, col. 5, lines 23-40), and a second source transceiver (see figure 1, figure 4, col. 4, lines 18-30, col. 5, lines 23-40) for communicating through ad hoc wireless network coverage within the neighborhood cell; A destination unit (see figure 1, multi-mode communication device 34) including a first destination transceiver (see figure 3, radio interface 68) for communicating through the wide area wireless network coverage outside of the



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neighborhood cell, and a second destination transceiver (see figure 3, radio interface 70) for communicating through the ad hoc wireless network coverage within the neighborhood cell (see figure 1, figure 3, col. 4, lines 18-30, col. 5, lines 23-40).

Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the system of Anvekar with the teaching of Karaoguz to provide a source mobile subscriber unit including a first source transceiver for communicating through wide area wireless network coverage outside of the neighborhood cell, and a second source transceiver for communicating through ad hoc wireless network coverage within the neighborhood cell in order to communicate both wide area network and ad hoc network.

23. In the claim 17, Anvekar discloses the last hop node (see figure 4, M1, M2) is a subscriber unit located at a fixed position within the neighborhood cell (see col. 6, lines 18-26, lines 50-67).

24. In the claim 18, Anvekar discloses the last hop node is a mobile subscriber unit within the neighborhood cell that dynamically defines the neighborhood cell (see col. 6, lines 18-26).

25. In the claim 19, Anvekar discloses a plurality of subscriber units located within the neighborhood cell for providing the ad hoc wireless network coverage between the source mobile subscriber unit and the destination unit within the neighborhood cell (see figure 4, see col. 6, lines 18-26, M1, M2).

26. In the claim 20, Anvekar discloses the last hop node (see figure 4, col. 6, lines 18-26) is further for periodically probing the plurality of mobile subscriber units to collect

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ad hoc wireless network coverage information from each of the plurality of mobile subscriber units for use in establishing the ad hoc wireless network coverage.

***Claim Rejections - 35 USC § 103***

27. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

28. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combined system (Anvekar – Karaoguz) in view of Razavilar et al. (U.S. Patent No. 7,009,952 B1).

In the claim 21, the combined system (Anvekar – Karaoguz) discloses the limitations of claim 16 above.

However, the combined system (Anvekar – Karaoguz) is silent to disclosing the last hop node is further for regulating data packet traffic between the source mobile subscriber unit and the destination unit during the ad hoc wireless network coverage.

Razavilar et al. discloses the last hop node (see figure 1, the access point) is further for regulating data packet traffic between the source mobile subscriber unit and the destination unit during the ad hoc wireless network coverage (see figure 1, col. 3, lines 1-15).

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Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the combined system (Anvekar – Karaoguz) with the teaching of Razavilar to provide the last hop node is further for regulating data packet traffic between the source mobile subscriber unit and the destination unit during the ad hoc wireless network coverage in order to handoff (or switching over) from one access point to another access point, maintaining an established network session.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CHUONG T. HO whose telephone number is (571) 272-3133. The examiner can normally be reached on 8:00 am to 4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy Vu can be reached on (571) 272-3155. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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A handwritten signature in black ink, appearing to read 'Huy D. Vu', with a long horizontal line extending to the right.

HUY D. VU  
SUPERVISORY PATENT EXAMINER  
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